

## CLAIMS

1. A heat resistant electret material comprising a fluorocarbon resin,  
wherein the fluorocarbon resin is a modified polytetrafluoroethylene.  
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2. The heat resistant electret material according to claim 1, wherein the  
modified polytetrafluoroethylene is a copolymer obtained by copolymerizing  
99.0 to 99.999 mol% of tetrafluoroethylene and 1.0 to 0.001 mol% of  
perfluorovinyl ether.  
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3. The heat resistant electret material according to claim 1, which has a  
dielectric constant of 2.1 or less and a volume resistivity of at least  $1.0 \times 10^{18}$   
 $\Omega \cdot \text{cm}$ .
- 15 4. A heat resistant electret comprising a metal member and a heat resistant  
electret material that comprises a fluorocarbon resin and is disposed on a  
surface of the metal member,  
wherein the fluorocarbon resin is a modified polytetrafluoroethylene.
- 20 5. The heat resistant electret according to claim 4, wherein the modified  
polytetrafluoroethylene is a copolymer obtained by copolymerizing 99.0 to  
99.999 mol% of tetrafluoroethylene and 1.0 to 0.001 mol% of perfluorovinyl  
ether.
- 25 6. The heat resistant electret according to claim 4, wherein the heat  
resistant electret material has a dielectric constant of 2.1 or less and a  
volume resistivity of at least  $1.0 \times 10^{18} \Omega \cdot \text{cm}$ .
- 30 7. The heat resistant electret according to claim 4, wherein the metal  
member is formed of at least one selected from brass, aluminum, stainless

steel, copper, titanium, nickel silver, phosphor bronze, an alloy thereof, and a metal having a surface layer formed by plating or evaporation coating therewith.

- 5     8. The heat resistant electret according to claim 4, wherein the metal member is a metal plate.
9. A heat resistant electret comprising a metal member and a resin film adhered to a surface of the metal member,
- 10         wherein the resin film comprises polytetrafluoroethylene,  
             a contact angle of a water droplet on one surface of the resin film is not greater than  $110^\circ$ , and  
             said one surface of the resin film is adhered to the metal member.
- 15     10. The heat resistant electret according to claim 9, wherein a  $180^\circ$  peel strength between the metal member and the resin film is at least 0.5 N/cm.
11. The heat resistant electret according to claim 9, wherein the resin film has a dielectric constant of 2.1 or less and a volume resistivity of at least  $1.0 \times$
- 20      $10^{18} \Omega \cdot \text{cm}$ .
12. The heat resistant electret according to claim 9, wherein the metal member is a metal plate.
- 25     13. The heat resistant electret according to claim 9, wherein the metal member is formed of at least one selected from brass, aluminum, stainless steel, copper, titanium, nickel silver, phosphor bronze, an alloy thereof, and a metal having a surface layer formed by plating or evaporation coating therewith.

14. A heat resistant electret comprising a metal member and a resin film adhered to a surface of the metal member,  
wherein the resin film comprises polytetrafluoroethylene, and  
only a surface on the metal member side of the resin film has been  
5 subjected to an adhesion-improving treatment.
15. The heat resistant electret according to claim 14, wherein the adhesion-improving treatment is at least one treatment selected from a chemical conversion treatment, a corona treatment, a plasma treatment, and  
10 a sputtering treatment.
16. The heat resistant electret according to claim 14, wherein a 180° peel strength between the metal member and the resin film is at least 0.5 N/cm.
- 15 17. The heat resistant electret according to claim 14, wherein the resin film has a dielectric constant of 2.1 or less and a volume resistivity of at least  $1.0 \times 10^{18} \Omega \cdot \text{cm}$ .
- 20 18. The heat resistant electret according to claim 14, wherein the metal member is a metal plate.
19. The heat resistant electret according to claim 14, wherein the metal member is formed of at least one selected from brass, aluminum, stainless steel, copper, titanium, nickel silver, phosphor bronze, an alloy thereof, and a  
25 metal having a surface layer formed by plating or evaporation coating therewith.